CLAIMS

1.   Sampling method that can be used in an automatic analysis apparatus, said automatic apparatus including a needle (5) for taking a sample to be analyzed, said sample being removed from a receptacle (30), characterized in that said needle is rotated about an axis (X2) forming an angle with said sampling needle.

2.   Method according to claim 1, characterized in that the needle being fixed on a rocker mobile about an axis (X2), it comprises a step for driving the sampling needle in translation relative to the rocker by driving means comprising a carriage (13) mobile in translation relative to the rocker and also a belt (15) stretched radially between a drive pulley (16) and a loose pulley (17), one of these pulleys serving as a pivot on the rocker, the carriage being fixed on the belt.

3.   Method according to claim 2, characterized in that translation and rotation are independent.

4.   Method according to one of claims 1 to 3, characterized in that, to remove the sample, the sampling needle is moved such that it points downwards.

5.   Method according to claims 1 to 4, characterized in that to remove the sample, the sampling needle is moved such that it points upwards.

6.   Method according to claim 5, characterized in that if the receptacle is stopped with a bung (31), the receptacle is directed such that the bung points downwards, then the bung is pierced with a needle by inserting it at least to the depth of said bung.

7.   Method according to one of claims 1 to 6, characterized in that, to remove the sample, the sampling needle is moved such that it forms an angle with the vertical.

8.   Method according to one of claims 1 to 7, characterized in that, after having removed a sample, the needle is moved to a distribution position (P2, P3) where the needle points downwards above a vessel (32, 33).

9. Method according to claim 8, characterized in that there is a position of the needle, in rotation about the axis, so that the vessel can be removed from the apparatus.

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10. Sampling device usable in an automatic analysis apparatus, said device including a needle (5) for taking a sample to be analyzed, said sample being removed from a receptacle (30), characterized in that the sampling needle is mobile about an axis (X2) forming an angle with said sampling needle.

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11. Device according to claim 10, characterized in that it comprises means so that the needle can be moved all around the axis.

12. Device according to claim 10 or 11, characterized in that the angle formed by the axis and the needle is an approximately right angle.

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13. Device according to claims 10 to 12, characterized in that it includes a rocker (2) mobile about the axis (X2), the sampling needle being mounted on the rocker.

20 14. Device according to claim 13, characterized in that the sampling needle is mounted mobile in translation relative to the rocker, describing a movement which moves it away from or towards the axis.

15. Device according to claim 14, characterized in that it comprises means so that translation and rotation are independent.

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16. Device according to claim 14, characterized in that the sampling needle mounted mobile in translation through a body (7) fixed relative to the rocker.

30 17. Device according to claim 16, characterized in that it includes means (9) for fixing the body by locking on the rocker.

18.   Device according to one of claim 16 or 17, characterized in that the sampling needle and the body form part of a double needle (3) also comprising a pre-piercing needle (6), the sampling needle being mounted sliding in the pre-piercing needle.

5   19.   Device according to one of claim 18, characterized in that the pre-piercing needle is mounted fixed on the body.

20.   Device according to claims 13 to 19, characterized in that it comprises means (13-18) for driving the sampling needle in translation relative to the rocker, said driving
10   means comprising a carriage (13) mobile in translation relative to the rocker, said sampling needle being fixed by self-locking on the carriage.

21.   Device according to claim 20, characterized in that the driving means further comprise a belt (15) stretched radially between a drive pulley (16) and a loose pulley
15   (17), one of these pulleys serving as a pivot on the rocker, the carriage being fixed on the belt and mobile in translation on a guide (14).

22.   Device according to claim 20 or 21, characterized in that the driving means comprise a belt and/or a screw/nut device.
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23.   Device according to claims 13 to 22, characterized in that at least one needle (5, 6) includes a rinsing head (35, 36), it includes a tube (33, 34) to carry a rinsing product to said rinsing head, the rocker including at least one chute (37) to guide said tube from the vicinity of the rinsing head to the vicinity of the axis (X2).
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24.   Device according to one of claims 13 to 23, characterized in that the rocker includes means (24, 25) for pivoting the rocker about its axis.

25.   Device according to claim 24, characterized in that the pivoting means include
30   a rack (24) forming an arc about the axis (X2) and a pinion (25) engaging with the rack to drive the rocker in rotation about the axis.

26. Device according to claim 25, characterized in that the rack is provided on the rocker, in a part of the rocker distant from the axis.

27. Device according to claim 24, characterized in that the pivoting means comprise a belt or a cable or screw/nut device.